

A primary aim of *Understanding Ageing* is to dispel the view that ageing is a major unsolved problem in biology. The adult organism is maintained in a functional state by at least ten major mechanisms, which together comprise a substantial proportion of all biological processes. It can be shown that these maintenance mechanisms ultimately fail because the evolved physiological and anatomical design of higher animals is incompatible with continual survival. Studies with different mammalian species strongly indicate that cellular maintenance mechanisms are more effective in long-lived animals than in those with a short lifespan. The investment of metabolic resources into rapid growth and reproduction diminishes the resources available for maintenance, whereas this is much more effective in slowly-breeding animals. The eventual breakdown of maintenance leads to many age-related diseases, and the study of these in humans is documented by a huge biomedical literature, which is not generally regarded as being within the province of gerontology. The reality is that this information provides much insight into the changes in cells and tissues that accompany ageing. To understand in more detail the origin of all these diseases demands future research into the failure of maintenance at the cellular and molecular levels. This in turn will make it easier to devise preventative measures.

This book is thought provoking because it outlines a new approach to a fundamental biological process. It will appeal to all students and researchers who are interested in ageing and age-related disease, whether they are working in the clinical or basic research sphere.

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